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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/809,170 | 03/25/2004 | Daniel Lee Carter | 2003-0781.03 | 6818 |
| 21972 | 7590 | 01/11/2007 | EXAMINER | |
| LEXMARK INTERNATIONAL, INC. INTELLECTUAL PROPERTY LAW DEPARTMENT 740 WEST NEW CIRCLE ROAD BLDG. 082-1 LEXINGTON, KY 40550-0999 | | | ROTH, LAURA K | |
| | | ART UNIT | PAPER NUMBER | |
| | | | 2852 | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE | | |
| 3 MONTHS | 01/11/2007 | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/809,170 | CARTER ET AL. | |
| | Examiner | Art Unit | |
| | Laura K. Roth | 2852 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 31 October 2006.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-22 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-22 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, and 8-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn (US Pub. 2003/0235449) in view of Murata (US Pub. 2004/0037601).

Regarding claim 1, Ahn (US Pub. 2003/0235449) teaches a method of operating a fuser unit for duplex printing, comprising: providing a hot roll (fig.1, #41) and a backup roll (fig.1, #42) in nipped relation (fig.1, see relation of #41 & #42; para.0011), and a drive system (fig.3, located in box #157) including a drive motor (fig.3, #157a) for causing the rotation of the rolls (para.0071, ln.1-5); operating the motor at a first process speed in a first direction (para.0093, ln.5-7: clockwise) for advancing media between the hot roll and backup roll for fusing an image on a first side of the media; reversing the direction of operation of the motor to begin duplex routing of the media by operating the motor in an opposite direction from the first direction (para.0098); re-reversing the direction of operation of the motor while media is routed back to the nip formed between the hot roll and the backup roll (para.0101).

Regarding claim 2, Ahn (US Pub. 2003/0235449) teaches a method wherein said step of operating the motor at a speed greater than the first process speed being performed by operating the motor at a speed of about twice the first process speed (para.0099).

Regarding claim 3, Ahn (US Pub. 2003/0235449) teaches a method wherein said fuser having a second process speed greater than the first process speed, and said step of operating the motor at a speed greater than the first speed being performed by operating the motor at the second process speed (para.0099).

Regarding claim 4, Ahn (US Pub. 2003/0235449) teaches a method wherein said step of operating the motor at a speed greater than the first process speed being performed by operating the motor at a speed of about twice the first speed (para.0099).

Regarding claim 5, Ahn (US Pub. 2003/0235449) teaches a method wherein said fuser being operated in a one-image mode (para.0090).

Regarding claim 6, said step of operating the motor at a speed greater than the first process speed being performed by operating the motor at a speed of about twice the first process speed (para.0099).

Regarding claim 8, Ahn (US Pub. 2003/0235449) teaches an image forming apparatus wherein said fuser being operated in a two-image mode (para.0092).

Regarding claim 9, Ahn (US Pub. 2003/0235449) teaches an image forming apparatus wherein said step of operating the motor at a speed greater than the first process speed being performed by operating the motor at a speed of about twice the first process speed (para.0099).

Regarding claim 12, Ahn (US Pub. 2003/0235449) teaches a method of operating a fuser unit for duplex printing, comprising: providing a hot roll (fig.1, #41) and a backup roll (fig.1, #42) in nipped relation (fig.1, see relation of #41 & #42; para.0011), and a drive system (fig.3, located in box #157) including a drive motor (fig.3, #157a) for

causing the rotation of the rolls (para.0071, ln.1-5); operating the motor at a first process speed in a first direction for advancing media between the hot roll and backup roll for fusing an image on a first side of the media (para.0093, ln.5-7: clockwise); stopping rotation of the hot roll and the backup roll after fusing an image on a first side of the media while the drive motor rotates (para.0073); resuming rotation of the hot roll and the backup roll before advancing the media between the hot roll and the backup roll for fusing an image on a second side of the media (para.0101).

Regarding claim 13, Ahn (US Pub. 2003/0235449) teaches a step of operating the motor at a speed greater than the first process speed being performed by operating the motor at a speed of about twice the first process speed (para.0099).

Regarding claim 14, Ahn (US Pub. 2003/0235449) teaches an image forming apparatus wherein said fuser being operated in a one-image mode (para.0090).

Regarding claim 15, Ahn (US Pub. 2003/0235449) teaches an image forming apparatus wherein said fuser being operated in a two-image mode (para.0092).

Regarding claim 17, Ahn (US Pub. 2003/0235449) teaches an image forming apparatus wherein said fuser being operated in a one-image mode (para.0090).

Regarding claim 20, Ahn (US Pub. 2003/0235449) teaches a method of operating a fuser unit for duplex printing, comprising: providing a hot roll (fig.1, #41) and a backup roll (fig.1, #42) in nipped relation (fig.1, see relation of #41 & #42; para.0011), and a drive system (fig.3, located in box #157) including a drive motor (fig.3, #157a) and drive train (fig.3, series of gears #162-164) for causing the rotation of the rolls (para.0071, ln.1-5); operating the motor at a first process speed in a first direction

(para.0093, ln.5-7: clockwise) for advancing media between the hot roll and backup roll for fusing an image on a first side of the media; disengaging the hot roll from the drive train after fusing an image on a first side of the media (para.0073; para.0097); re-engaging the hot roll with the drive train before advancing the media between the hot roll and the backup roll for fusing an image on a second side of the media (para.0101; para.0073).

Regarding claim 22, Ahn (US Pub. 2003/0235449) teaches an image forming apparatus further comprising the step of re-engaging the hot roll and the backup roll with the drive system during the re-reversing step (para.0101; para.0073).

From the disclosure of Ahn (US Pub. 2003/0235449), though not explicitly stated, the original driving speed of the second motor is implied to be slower than the second driving speed of the motor, presumably the first driving speed is the same as the driving speed of the first motor. It would have been obvious to one of ordinary skill in the art at the time of invention to set the first motor driving speed and the second motor's first driving speed equal so that the paper transport speed between the first driving section and the second driving section during forward transport does not rapidly change. If the second motor forward speed was slower, a paper jam would be caused and if it was considerably faster, image quality could potentially be deteriorated.

However, Ahn (US Pub. 2003/0235449) fail to teach operating the motor at a greater speed to drive the hot roll, operating the motor at a speed greater than the first process speed after said resuming rotation, or re-engaging the drive with the hot roll.

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Regarding claim 1, Murata (US Pub. 2003/0081962) teaches stopping rotation of the hot roll and the backup roll after fusing an image on a first side of the media (fig.11, after fixing, rollers are stopped – second interval); resuming rotation of the hot roll and the backup roll before advancing the media between the hot roll and the backup roll for fusing an image (fig.11, pre-rotation mode); and operating the motor at a speed greater than the first process speed for a time to drive the hot roll while the media is being routed to the nip formed between the hot roll and the backup roll (para.0053).

Regarding claim 12, Murata (US Pub. 2003/0081962) teaches stopping rotation of the hot roll and the backup roll after fusing an image on a first side of the media (fig.11, after fixing, rollers are stopped – second interval); resuming rotation of the hot roll and the backup roll before advancing the media between the hot roll and the backup roll for fusing an image (fig.11, pre-rotation mode); and operating the motor at a speed greater than the first process speed to drive the hot roll while the media is apart from the fuser unit (para.0053).

Regarding claim 18, Murata (US Pub. 2003/0081962) teaches including preheating the backup roll before said step of operating the motor at a first process speed in a first direction for advancing media between the hot roll and backup roll for fusing an image on a first side of the media (para.0067).

Regarding claim 19, Murata (US Pub. 2003/0081962) teach said preheating performed by rotating the hot roll and the backup roll at greater than the first process speed (para.0067).

Regarding claim 20, Murata (US Pub. 2003/0081962) teaches stopping rotation of the hot roll and the backup roll after fusing an image on a first side of the media (fig.11, after fixing, rollers are stopped – second interval); resuming rotation of the hot roll and the backup roll before advancing the media between the hot roll and the backup roll for fusing an image (fig.11, pre-rotation mode); and operating the motor at a speed greater than the first process speed to drive the hot roll after resuming rotation of the hot roll and before the media returns to the fuser unit (para.0053).

It would have been further obvious to one of ordinary skill in the art at the time of invention to modify the fixing unit of Uchida et al. (US Pub. 2004/0037601) with the faster roller heating rotational controls of Murata (US Pub. 2003/0081962) in order to reheat the backup roller in a quick and efficient manner (para.0050) and to thereby prevent defective fixing (para.0006).

Regarding claim 6, Murata (US Pub. 2003/0081962) teaches the rotational speed being changed in such a way that the rollers can reach the predetermined temperature in an efficient manner for reliable fixing (para.0057).

Regarding claim 13, Murata (US Pub. 2003/0081962) teaches the rotational speed being changed in such a way that the rollers can reach the predetermined temperature in an efficient manner for reliable fixing (para.0057).

Regarding claim 16, Murata (US Pub. 2003/0081962) teaches the rotational speed being changed in such a way that the rollers can reach the predetermined temperature in an efficient manner for reliable fixing (para.0057).

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Regarding claim 21, Murata (US Pub. 2003/0081962) teaches the rotational speed being changed in such a way that the rollers can reach the predetermined temperature in an efficient manner for reliable fixing (para.0057).

Though twice the speed is not explicitly taught, the Office believes, in view of *In re Aller*, (220 F.2d 454, 456, 105 USPQ 233, 235(CCPA 1955)), that the ranges set forth in the claims are optimum workable ranges discovered by experimentation and that the applicant shows no evidence that the specified values are critical.

However, regarding claim 10 and 11, Ahn (US Pub. 2003/0235449) fails to teach preheating a backup roll.

Regarding claim 10, Murata (US Pub. 2003/0081962) teach including preheating the backup roll before said step of operating the motor at a first process speed in a first direction for advancing media between the hot roll and backup roll for fusing an image on a first side of the media (para.0067).

Regarding claim 11, Murata (US Pub. 2003/0081962) teach said preheating performed by rotating the hot roll and the backup roll at greater than the first process speed (para.0067).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the fixing unit of Ahn (US Pub. 2003/0235449) with the faster roller heating rotational controls of Murata (US Pub. 2003/0081962) in order to reheat the backup roller in a quick and efficient manner (para.0050) and to thereby prevent defective fixing (para.0006).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn (US Pub. 2003/0235449) in view of Murata (US Pub. 2003/0081962) as applied to claim 5 above, and in further view of Yoshioka (US 5,659,846).

Ahn (US Pub. 2003/0235449) in view of Murata (US Pub. 2003/0081962) teaches all of the limitations of claims 1 and 5 (upon which claims 7 and 8-9 depend).

However, Ahn (US Pub. 2003/0235449) in view of Murata (US Pub. 2003/0081962) fail to teach an additional step of stopping the media during duplex routing.

Regarding claim 7, Yoshioka (US 5,659,846) teaches including a step of stopping the media during duplex routing (col.7, ln.52-58).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of Ahn (US Pub. 2003/0235449) in view of Murata (US Pub. 2003/0081962) to incorporate the intermediate sheet storage mode of Yoshioka (US 5,659,846) to allow the user greater flexibility of duplex printing option by allowing the user to print more than one copy of a media at a given time and allowing a variety of duplex printing options that are otherwise unavailable with the one-image printing (col.7, ln.45-51).

Response to Arguments

Applicant's arguments with respect to claims 1-11 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 31 October 2006, regarding the rejection of claims 12, 20 and their dependents, have been fully considered but they are not persuasive. Regarding arguments against the combination of Ahn (US Pub. 2003/0235449) [hereafter known as Ahn] in view of Murata (US Pub. 2003/0081962) [hereafter known as Murata], Murata teaches that when a fusing unit containing a heating roller and a backup roller remain stationary for a period of time, the temperature across the periphery of the rollers will drop outside the nip and become non-uniform. As a result, faster rotation prior to a printing medium entering the fusing unit is used to create an even heating situation. Since the apparatus of Ahn has a mode in which the rollers are disengaged and thus stationary for a period of time as the printing medium is re-routed back through the apparatus, it would have been obvious to one of ordinary skill in the art at the time of invention to apply a re-rotation technique as seen in Murata to the apparatus operation of Ahn such that the rollers of Ahn would also be subjected to uneven heating due to the stationary period during rerouting of the printing medium. The facts that Ahn rotated the motor faster during a disengaged period or that Murata uses temperature sensors in one spot are auxiliary to the premise of the combination. The Office notes the clarification of the intended meanings of "one-image mode" and "two-image mode," but still relies upon previous interpretations, as they are still the broadest reasonable interpretations of the terms.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

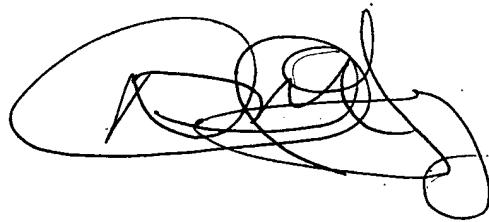
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura K. Roth whose telephone number is (571)272-2154. The examiner can normally be reached on Monday-Friday, 7:30 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David M. Gray can be reached on (571)272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LKR
1/8/2007

A handwritten signature in black ink, appearing to read "DAVID M. GRAY". The signature is somewhat stylized and includes a small circle to the right of the main name.

DAVID M. GRAY
SUPERVISORY PATENT EXAMINER